

CLAIMS

1. A parallelepiped type condenser microphone for SMD, the condenser microphone comprising:
- 5 a case formed in a square box shape, the case having an open surface and a closed bottom surface which is formed with sound holes for collecting sound;
- a diaphragm member formed in a ring shape, the diaphragm member being inserted into the case;
- a thin spacer formed in a ring shape;
- 10 a cylindrical insulating ring having an open top and bottom portions;
- a back plate formed in a disk shape and having sound holes therethrough;
- an annular conductive ring for electrically connecting the back plate to a PCB; and
- the PCB formed in a square plate shape, the PCB having electronic components mounted on one surface of the PCB and projecting terminals formed on the other surface thereof.
- 15 whereby the diaphragm member, the spacer, the insulating ring, the back plate, the conductive ring, and the PCB are sequentially arranged in the case and then the condenser microphone is integrally assembled by curling an end of the case.
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2. A parallelepiped type condenser microphone for SMD, the condenser microphone comprising:
- a case formed in a square box shape, the case having an open surface and a closed bottom surface which is formed with sound holes for collecting sound;
- 25 a diaphragm member having a square peripheral surface which is inserted into the case and a circular diaphragm formed on the inside thereof;
- a spacer having a square peripheral surface and a circular inner circumferential surface;
- a square box shaped insulating ring having an open top and bottom portions;
- 30 a back plate formed in a square shape and having sound holes therethrough;
- a conductive ring having a square peripheral surface for electrically connecting the back plate to a PCB and a circular inner circumferential surface; and
- the PCB formed in a square plate shape, the PCB having electronic components mounted on one surface of the PCB and projecting terminals formed
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on the other surface thereof.

whereby the diaphragm member, the spacer, the insulating ring, the back plate, the conductive ring, and the PCB are sequentially arranged in the case and then the condenser microphone is integrally assembled by curling an end of the case.

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3. A parallelepiped type condenser microphone for SMD, the condenser microphone comprising:

a case formed in a square box shape, the case having an open surface and a closed bottom surface which is formed with sound holes for collecting sound;

10 a diaphragm member having a square peripheral surface which is inserted into the case and a square diaphragm on the inside thereof;

a spacer having a square peripheral surface and a square inner circumferential surface;

a square box shaped insulating ring having an open top and bottom portions;

15 a back plate formed in a square shape and having sound holes therethrough;

a conductive ring having a square peripheral surface for electrically connecting the back plate to a PCB and a square inner circumferential surface; and

20 the PCB formed in a square plate shape, the PCB having electronic components mounted on one surface of the PCB and projecting terminals formed on the other surface thereof.

whereby the diaphragm member, the spacer, the insulating ring, the back plate, the conductive ring, and the PCB are sequentially arranged in the case and then the condenser microphone is integrally assembled by curling an end of the case.

25 4. A parallelepiped type condenser microphone for SMD, the condenser microphone comprising:

a case formed in a square box shape, the case having an open surface and a closed bottom surface which is formed with sound holes for collecting front sound;

30 a diaphragm member formed in a ring shape, the diaphragm member being inserted into the case;

a thin spacer formed in a ring shape;

a shield ring formed in a loop shape for insulating a back plate;

the back plate formed in a disk shape and having sound holes therethrough;

35 an integrated base having a cylindrical insulating body having open top and

bottom portions and a conductive layer which provides an electrical connection between the back plate and a PCB and is formed in the inner surface of the insulating body; and

the PCB formed in a square plate shape, the PCB having electronic components mounted on one surface of the PCB and projecting terminals formed on the other surface thereof.

whereby the diaphragm member, the spacer, the shield ring, the back plate, the integrated base, and the PCB are sequentially arranged in the case and then the condenser microphone is integrally assembled by curling an end of the case.

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5. A parallelepiped type condenser microphone for SMD, the condenser microphone comprising:

a case formed in a square box shape, the case having an open surface and a closed bottom surface which is formed with sound holes for collecting sound;

15 a diaphragm member having a square peripheral surface which is inserted into the case and a square diaphragm on the inside thereof;

a spacer having a square peripheral surface and a square inner circumferential surface;

a shield ring formed in a square ring shape for insulating a back plate;

20 the back plate formed in a square plate shape and having sound holes therethrough;

an integrated base having a square box shaped insulating body having open top and bottom portions and a conductive layer which provides an electrical connection between the back plate and a PCB and is formed in the inner surface of the insulating body; and

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the PCB formed in a square plate shape, the PCB having electronic components mounted on one surface of the PCB and projecting terminals formed on the other surface thereof.

whereby the diaphragm member, the spacer, the shield ring, the back plate, the integrated base, and the PCB are sequentially arranged in the case and then the condenser microphone is integrally assembled by curling an end of the case.

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6. A parallelepiped type condenser microphone for SMD, the condenser microphone comprising:

35 a case formed in a square box shape, the case having an open surface and a

closed bottom surface which is formed with sound holes for collecting sound;

a diaphragm member having a square peripheral surface which is inserted into the case and a circular diaphragm on the inside thereof;

5 a spacer having a square peripheral surface and a circular inner circumferential surface;

a shield ring having a square peripheral surface for insulating a back plate and a circular inner circumferential surface;

the back plate formed in a disk shape and having sound holes therethrough;

10 an integrated base having an insulating having open top and bottom portions, a square peripheral surface, and a cylindrical inner circumferential surface, and a conductive layer which provides an electrical connection between the back plate and a PCB and is formed in the inner surface of the insulating body; and

15 the PCB formed in a square plate shape, the PCB having electronic components mounted on one surface of the PCB and projecting terminals formed on the other surface thereof.

whereby the diaphragm member, the spacer, the shield ring, the back plate, the integrated base, and the PCB are sequentially arranged in the case and then the condenser microphone is integrally assembled by curling an end of the case.

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7. A condenser microphone according to any one of claims 4 to 6, wherein the integrated base includes a through hole or via hole formed in an inside of the insulating body for connecting conductive plating patterns on top and bottom surfaces of the insulating body.

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8. A condenser microphone according to any one of claims 1 to 6, wherein the square components have an edge formed in a round shape at which each side of the square components is in contact each other, depending on convenience of manufacture and assembly of the components.

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9. A condenser microphone according to any one of claims 1 to 6, wherein the electronic components on the PCB includes an IC, and the IC is one selected from the group consisting of a junction field effect transistor (JFET), an amplifier, an analog-digital (A/D) converter and an ASIC which is an IC customizing the amplifier and the analog-digital (A/D) converter.

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10. A condenser microphone according to any one of claims 1 to 6, wherein
each of the components of the condenser microphone can be assembled by
exchanging the components each other depending on convenience of manufacture of
5 the components or convenience of assembly of the components.

11. A condenser microphone according to any one of claims 1 to 6, wherein the
case is not formed with sound holes at the central portion of the bottom surface
thereof, which is a position for picking up the microphone from a tape & reel in the
10 process of the SMD.

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